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ABSTRACT

The information needs of registered nurses from all fields in a 17 county area of upstate New York were surveyed. Nurses expressed a significant need for improved information in new developments in their specializations, government regulations relating to health care, and other subjects. Sources of information most frequently used were colleagues, articles in newspapers and magazines, books, and papers in professional journals, in that order. Twenty-nine percent of the respondents were involved in professional education programs. Nursing educators tended to use all sources of information more often than did other nurses. Along with the most recently trained nurses, they made more significant use of certain library-related products and services. Non-hospital nurses indicated greater need for information than hospital nurses in most subject areas. Seminars, workshops and conferences, and video, slide, and tape programs were the most popular potential sources of information. Most nurses were willing to wait for a week for most of their information. Suggestions for publicizing library services include contributions to nursing literature and establishing communication with local nursing associations and educators. An investigation of access to resources is recommended as well as further research into the specific needs of health care practitioners. (Author/MER)

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The Information Needs of Registered Nurses in Northeastern New York State (HSA V)*

by

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ABSTRACT

The information needs of registered nurses from all fields in a seventeen-county area of upstate New York (HSA V) were surveyed. Response rate was 54.4% (255 usable replies). Nurses expressed a significant need for improved information in new developments in their specializations, government regulations relating to health care, and other subjects. Sources of information most frequently used were colleagues, articles in newspapers and magazines, books, and papers in professional journals, in that order. Twenty-nine percent of respondents were involved in programs of professional education. Nursing educators tended to use all sources of information more often than did other nurses. Along with the most recently trained nurses (1970-), they made more significant use of certain library-related products and services. Non-hospital nurses indicated greater need for information than hospital nurses in most subject areas. Seminars, workshops and conferences, and video, slide and tape programs were the most popular potential sources of information. Most nurses were willing to wait for a week for most of their information. Suggestions for publicizing library services include contributions to nursing literature, and establishing communication with local nursing associations and educators. Access to resources should be investigated; innovative techniques may be necessary to reach non-hospital nurses.

The present study is part of a continuing, management-initiated investigation into the information needs of health care practitioners in the seventeen-county region of upstate New York (HSA V) served by Schaffer Library of Health Sciences, Albany Medical College, as the designated Health Service Area library. Intended eventually to include a broadly based user population (both potential and actual) of allied health care personnel, research is focused initially on the needs of practicing physicians, to be reported separately, and registered nurses.

PRIOR RESEARCH

While there is an abundance of literature concerned with the information needs and uses of scientists, studies of the needs of health care practitioners are scarcer. Up-to-date research on registered nurses is virtually nil, except in some areas of continuing education [1]. As far as can be determined, there are no studies strictly comparable to this one, although nursing personnel (166 hospital nurses and 124 non-hospital nurses) were included in a Canadian study published in 1973 [2]. A far-ranging investigation into the information-seeking behavior of a variety of health care professionals, the study revealed that both hospital and non-hospital nurses in the three-county area of Ontario surveyed were dependent upon their superiors for current awareness information, and ranked below other professions in their dependence on colleagues. Hospital nurses were below the mean in use of periodicals for current awareness, though over 75% of both groups reported use of the libraries at their place of work.

A British study of the reading habits of qualified nurses in 1971 [3] showed that of the groups investigated (psychiatric and general hospital nurses), only 11.3% read a professional magazine regularly. Nearly half the nurses who read them at all acquired them from some source other than personal

subscription. Of the general nurses, 38.5% made use of their hospital libraries, though this figure rose to 74.2% among the psychiatric nurses.

In this country, one of the few information studies on a population of nurses was reported by Glass in 1971 [4]. This was a detailed survey of the information needs of users of Nursing Research abstracts. While the group studied was large (2,078) and the survey national in scope, the population was unusual in that nearly 75% held a master's degree or higher; hence responses of this group were not characteristic of the nursing population in general.

STUDY DESIGN

Hypotheses

In addition to the project goals of data-gathering to determine the characteristics and needs of health care practitioners in HSA V, the following hypotheses were tested in this phase of the study:

1. Health care practitioners perceive a distinct need for improvement in the quality of their information in certain subject areas.
2. Health care practitioners use verbal and other non-written sources of information more often than other sources to fill their professional information needs.

(a) Nursing personnel working in nursing education or administrative/supervisory settings tend to use all sources of information more frequently than those working in other areas.

(b) The use of library-related information sources increases with recency of training.

(c) Hospital-based nurses differ significantly from non-hospital nurses in their use of certain information sources.

3. Most of the information needs of health care practitioners must be met on the same day they arise, or sooner.

4. Health care practitioners who use libraries are generally satisfied with their service.

Target Population

In determining the universe for the registered nurses, the study was hampered by a lack of current available data on licensed R.N.'s and their locations within the area. The State Education Department would release statistics on licensed R.N.'s by county, but not their names and addresses. It was decided to make use of the membership lists of two statewide professional associations, on the theory that nurses with at least this amount of professional involvement would provide more usable data for the study.

The universe for the registered nurses consisted primarily, therefore, of: 1) members of the Empire State Nurses Association (ESNA) in the Northeastern New York (NENY) area; and 2) members of the New York State Nurses' Association (NYSNA) in the NENY area. (NYSNA is the state-level division of the American Nurses' Association.) A third list of nurses newly licensed in New York State as of May 1975 was issued as a press release by the State Education Department. Thirteen counties in the study region were represented, and these newly licensed nurses were added to the sample universe. (Student nurses were not included at all in this study.)

From the total of 1,593 registered nurses carried on the membership list of ESNA for the study region, a systematic sample of 20% was drawn for each county, for a total of 320. A list of another 120 nurses was obtained from NYSNA; these represented a computer-generated random sampling of about 14% from the approximately 880 members in the study region (which did not correspond exactly with the regional divisions of NYSNA, resulting in underrepresentation of certain counties.) An additional 60 names were systematically selected from the list of newly licensed nurses, which included 180 people in the study area, resulting in a 33.3% sample from this group.

There was no duplication between NYSNA and ENA samples, and duplicates on the new nurses' list were eliminated before sampling. Table 1 shows the relationship of each part of the sample, by county, to the regional sample.

It was anticipated that the sample of nurses would include nonusers as well as users of library services.

Development of the Survey Instrument*

Since the primary intention of this study was to determine respondents' basic information needs and use of sources, rather than to survey use of libraries or library resources exclusively, a questionnaire was designed with a marketing philosophy in mind. (That is, planning and promotion of services is only secondary to the identification of real needs.) In its final form, the questionnaire consisted of four pages. Open questions were kept to a minimum; most questions could be answered by a check mark or by circling a number. Some information about the respondent's professional characteristics, involvement in continuing education and use of libraries was requested. The main part of the questionnaire, however, allowed respondents to be quite specific about their "need to know" and "quality of present information" in a list of given subject areas, and to rate the frequency with which they used a number of randomly ordered channels or sources of information.

Pretest and Mailing

The questionnaire was pretested on a small group of nurses at the Albany Medical Center Hospital, and after minor alterations to eliminate some perceived ambiguities, was distributed by mail to the 500 nurses in the sample during July 1976. A second mailing was sent to the non-responding nurses (about 66%) in August 1976. Both sets of questionnaires were accompanied by franked, self-addressed return envelopes. Final response

To accompany text on p. 4

Table 1

Sampling of Registered Nurses by County

	Empire State Nurses Assn.		New York State Nurses Assn.		Newly licensed nurses (May '75)		Total no. sampled in county	% of regional sample taken from county	County sample as a % of all licensed RN's in county*
	No.	% of county sample	No.	% of county sample	No.	% of county sample			
Albany	116	68.6	30	17.8	23	13.6	169	33.8	5.0
Clinton	0	0.0	7	70.0	3	30.0	10	2.0	1.0
Columbia	8	53.0	5	33.3	2	13.3	15	3.0	2.5
Delaware	1	100.0	0	0.0	0	0.0	1	0.2	0.3
Essex	1	100.0	0	0.0	0	0.0	1	0.2	0.3
Franklin	3	25.0	8	66.7	1	8.0	12	2.4	3.0
Fulton	4	36.4	5	45.5	2	18.0	11	2.2	2.3
Greene	2	66.7	1	33.3	0	0.0	3	0.6	1.0
Hamilton	0	0.0	1	100.0	0	0.0	1	0.2	4.0
Montgomery	5	45.5	2	18.0	4	36.4	11	2.2	2.0
Otsego	5	41.7	6	50.0	1	8.0	12	2.4	2.0
Rensselaer	62	85.0	6	8.0	5	7.0	73	14.6	5.0
Saratoga	46	70.1	13	20.0	6	9.2	65	13.0	5.0
Schenectady	37	46.8	34	43.0	8	10.1	79	15.8	5.0
Schoharie	1	50.0	0	0.0	1	50.0	2	0.4	1.0
Warren	16	84.0	1	5.3	2	10.5	19	3.8	3.0
Washington	13	81.3	1	6.3	2	12.5	16	3.2	4.0
Region	320	64.0	120	24.0	60	12.0	500	100.0	(4.0avg)

*From State Education Department figures for May 1975.

figures were calculated after adjusting sample totals for undeliverable questionnaires, and for those nurses who indicated that they were retired or permanently inactive in nursing practice.

Data Processing

Reutrns were coded for 75 separate data elements, which were then keypunched onto IBM cards and verified. "Other" categories and certain additional data were dealt with manually. The encoded data were processed by a Univac 1110 computer, using the "Frequencies" subprogram of the Statistical Package for the Social Sciences [5] as the primary means of analysis. After responses of all the nurses were tabulated, the data-selection capacity of SPSS was employed to isolate the responses of six subgroups: hospital-based nurses, non-hospital-based nurses, administrative/supervisory personnel, nursing educators, recently trained nurses (1970-), and temporarily inactive nurses. Administrative/supervisory personnel and nursing educators were determined by primary area of specialization as listed on the questionnaire. Certain characteristics of nurses responding to the first mailing were also selected for comparison with those who responded to the second mailing.

RESULTS

Returns Related to Sample

An overall response rate of 54.4%, or 255 usable returns, was obtained from the sample. Table 2 shows the relation of response to sample, broken down by county. This response, it will be noted, was fairly consistent for the counties from which the largest samples were drawn. Further analysis of the three separate components of the sample lists (not indicated in the table) showed the rate of return for each of the three to be comparable to that for the sample as a whole. The final composition of the group responding, by original list, was: EGNA, 63.5%; NYSNA, 24.9%; and newly

To accompany text on p. 5

Table 2

Adjusted Sample* and Usable Returns by County

	Adjusted sample	Usable returns	Usable returns as a % of adjusted sample
Albany	158	85	53.8
Clinton	8	4	50.0
Columbia	13	7	53.8
Delaware	1	0	0.0
Essex	1	1	100.0
Franklin	11	7	63.6
Fulton	10	5	50.0
Greene	3	2	66.7
Hamilton	1	1	100.0
Montgomery	9	7	77.8
Otsego	12	8	66.7
Rensselaer	67	36	53.7
Saratoga	63	29	46.0
Schenectady	76	43	56.6
Schoharie	2	2	100.0
Warren	18	10	55.6
Washington	16	8	50.0
Region	469	255	54.4

*Sample adjusted downward for undeliverable questionnaires, and retired and permanently inactive R.N.'s.

licensed nurses, 11.6%. (These figures refer to mailing lists only and should not be interpreted as exclusive membership in any group. There is, in fact, a substantial amount of overlap among them, as determined by responses to questions on recency of training and associations to which respondents belong.) While the response rate was considered satisfactory for the purposes of the study, time and other contraints precluded any rigorous statistical analyses of the results at this stage. In addition, the statistical picture was somewhat muddied by the way in which it was necessary to compose the sample from more than one source. Caution must be exercised, therefore, in interpreting the average responses of this group as representative of the total population of R.N.'s in the study region. For the universe specified, however, it is possible to be more confident.

Comparison of the nurses responding to the first mailing (N=170) with those who responded only after the second one (N=85) revealed some differences in their professional attributes. The latter group were more likely to answer "none" to the question of membership in professional organizations (18.1%) and subscription to professional journals (24.7%). Figures for the first group answering "none" to these questions were 10.2% and 10.8%, respectively. The second group was slightly less likely to be engaged in a program of professional education (27.7% to 30.5%), less likely to sign the questionnaire, indicating willingness to be interviewed (28.2% to 33.5%), more likely to be working in a hospital than otherwise (67.1% to 55.3%). Except for the responses on organizations and journals, and place of work, differences between the groups were relatively minor. Even assuming that the later respondents had more in common with non-respondents than with the first group, it would seem that the respondents as a whole were fairly typical of the entire sample, allowing for a slight downward

trend in professional parameters.

Characteristics of Respondents

Of the 255 nurses responding, 26.3% held a professional degree, 60.8% a diploma, and 12.9% both degree and diploma.* Non-hospital nurses were twice as likely to hold both; 18.3% compared to 9.3% of the hospital nurses. The pertinent question was not designed to distinguish among associate, baccalaureate or higher degrees, although possession of both diploma and degree usually implied a higher level degree. The inclusion of three nurse-practitioners and other specialists with additional training should also be noted. But it was considered that recency of basic training and other factors would have more import for the study than the specific type of preparation involved. Forty-eight percent of respondents gave the most recent date of obtaining degree or diploma as within the last ten years, and another 34.7% from ten to twenty years ago. The largest single group (23.8%) were trained during 1970-74.

Fields of nursing practice as coded from the questionnaire are displayed in Table 3. About two-fifths of the respondents were classifiable as non-hospital-based (40.8%); these represented a wide variety of fields. The "Other" category here included blood bank programs, school health services, [illegible] R.O. programs and personnel placement.

Primary areas of nursing specialization, broadly defined, are given in Table 4. The largest group falls into the most general category, Medical-surgical. Secondary specialties as listed by respondents followed much the same pattern of distribution as the primary specialties; 39.2% indicated no secondary specialty.

A majority of nurses indicated an urban area of practice (56.2%), with 25.3% suburban and 15% rural. Among non-hospital nurses, the percentage of rural practices was 23.9%. Most nurses were not engaged in a medical research project, with only 7.1% answering this question affirmatively. In the

To accompany text on p. 7

Table 3

Fields of Nursing Practice Represented by Respondents

	Number	% of all respondents
Hospital-based	151	59.2
Community health	18	7.1
Private practice	12	4.7
Nursing education (non-hospital)	11	4.3
School nurse-teacher	10	3.9
Consultant	9	3.5
Nursing home	8	3.1
Office nurse	8	3.1
Occupational health	4	1.6
Other	9	3.5
Temporarily inactive	15	5.9
	255	100.0

To accompany text on p. 7

Table 4

Areas of Nursing Specialization Represented by Respondents

	Number	% of all respondents to the question
Medical-surgical	62	25.8
Maternal and child health	35	14.6
Administrative/supervisory	32	13.3
Intensive care/coronary care	27	11.2
Community health	25	10.4
Nursing education	21	8.7
Operating room	15	6.3
Geriatric	9	3.7
Psychiatric and mental health	7	2.9
Nurse-anesthetist	5	2.1
Other	2	2.1
	240	100.0

case of R.N.'s involved in nursing education, this percentage rose to 15.8%, the projects variously described as health care-related or education-related.

Forty-two percent of the respondents said they belonged to one professional association, 27.7% to two, 16.4% to three or more; 12.9% said they belonged to none. Non-hospital nurses were less likely to answer "none" (7.8% compared to 16.3% of hospital nurses.) Respondents were asked to list up to three of their associations; the composite figures are set out in Table 5. NYSNA members, for the most part, indicated tri-level membership; district, state and national.

Thirty-four percent of the respondents subscribed to one professional journal, 20.2% to two, 30.6% to three or more; 15.5% subscribed to none. Again, respondents were asked to list up to three of these; results are given in Table 6. It should be noted that a number of nurses wrote in such comments as "journals available at the office" or "I use the library" when they listed few or no personal subscriptions.

Regarding both organizations and journals, the percentages dropped off sharply after the top two or three. The "Other" category was particularly crowded. Forty-six separate organizations were listed here; three of these were mentioned three times, six were listed twice and the remainder, once each. Many of these were associated with particular nursing specialties or with educational areas. Twenty-eight different journals were counted in "Other". Three of these were mentioned three times, two of them twice, and the rest, once each.

Need for Improved Information

The first hypothesis, regarding need for improvement in the quality of information, was tested by analysis of the mean responses to "need to know" (A) and "quality of present information" (B) questions, followed by construction of an "index of perceived need," (B-A). The results for all

To accompany text on p. 8

Table 5

Professional Organizations Most Frequently Listed by Respondents (Composite figures*)

	Number	% of all responding† who are members
Empire State Nurses Association (ESNA)	116	54.7
New York State Nurses' Association (NYSNA)	106	50.0
Alumnae associations	23	10.8
National League for Nursing (NLN)	14	6.6
American Association of Critical-Care nurses (AACN)	10	4.7
New York State School Nurse-Teachers Association	7	3.3
American Association of Nurse Anesthetists (AANA)	6	2.8
Association of Operating Room Nurses (AORN)	4	1.9
Sigma Theta Tau (National honor society of nursing)	4	1.9
Nurses' Assoc. of the American Coll. of Ob. and Gyn. (NAACOG)	4	1.9
New York State Teachers Association	4	1.9
Other (listed by 3 or fewer respondents)	80	37.7

*Figures do not total 100% since a maximum of 3 organizations could be listed by each respondent.
†Total responding to this question: 212.

To accompany text on p. 8

Table 6

Journals Most Frequently Listed by Respondents (Composite figures*)

	Number	% of all responding with personal subscriptions†
American Journal of Nursing	124	59.0
Nursing '76	87	41.4
R.N.	72	34.3
Nursing Outlook	17	8.1
Heart and Lung: the Journal of Critical Care	11	5.2
Supervisor Nurse	10	4.8
Nursing Clinics of North America	9	4.3
Nursing Digest	7	3.3
MCN: the American Journal of Maternal Child Nursing	7	3.3
Journal of Nursing Administration	6	2.9
JOGN Nursing (J. of Ob., Gyn. and Neonatal Nursing)	6	2.9
Journal of the Amer. Assn. of Nurse Anesthestists	5	2.4
Journal of the N.Y.S. School Nurse-Teachers Association	4	1.9
Journal of Psychiatric Nursing	4	1.9
Other (listed by 3 or fewer respondents)	85	40.5

*Figures do not total 100% since a maximum of 3 journals could be listed by each respondent.
†Total responding to this question: 210.

respondents and subgroups, omitting inactive nurses, are displayed in Tables 7, 8 and 9. Subjects are ranked by figures for respondents as a whole.

On all these tables, a general similarity of response patterns among the various groups emerges. Against this background, differences of 0.4 or more from the mean are regarded as significant.

The subjects about which the nurses in this study expressed the greatest need to know were new developments in area of specialization, and drug information. Values for these areas approached those for areas which were listed by respondents themselves (52 nurses or 20.4% of all respondents listed additional subjects of interest to themselves.) Only in two subject areas, forensic medicine and office organization, did any group express less than at least a moderate need to know (3.0). The administrative/supervisory group predictably expressed a significantly greater than average interest in government regulations relating to health care. In the area of health care agencies, hospital nurses indicated much less need to know than either the non-hospital nurses or the administrative/supervisory group, both of which showed greater than average interest. Since non-hospital nurses are often associated with or use health care agencies, and since these nurses include 40.6% of the administrative/supervisory group, this finding is not surprising. Both these groups also showed more than the average need to know about office organization. Conversely, nursing educators had very little interest in this area. Analysis of the "Other" category in this part of the questionnaire revealed two additional general areas in which substantial need to know was felt by those answering the question. These were personnel management and administrative practices, and education and related areas, including political and legislative trends and availability of continuing education or advanced training programs. Other areas varied widely, revealing the breadth of respondents' particular professional

To accompany text on p. 9

Table 7

Ranked Subject Areas According to "Need to Know": Mean Responses*

	All respondents (N=255)	Hospital-based RN's (N=151)	Non-hosp. based RN's (N=104)	Most recently trained (N=75)	Admin./ superv. (N=32)	Nurs. educ. (N=21)
New developments in area of specialization	1.7	1.8	1.6	1.6	1.7	1.6
Drug information	1.8	1.8	1.8	1.7	1.8	2.0
Psychological aspects of disease	2.1	2.2	2.1	2.2	2.1	2.0
Government regulations relating to health care	2.2	2.5	1.9	2.1	1.8	2.0
Cardiovascular disease	2.3	2.2	2.4	2.1	2.4	2.5
New medical equipment	2.3	2.1	2.4	2.2	2.2	2.6
Health care agencies	2.5	2.8	2.0	2.5	1.9	2.3
Cancer	2.4	2.5	2.3	2.3	2.5	2.6
Routine patient care	2.6	2.5	2.7	2.5	2.5	2.5
Forensic medicine	3.0	3.1	3.0	2.8	3.2	3.4
Office organization	3.6	3.9	3.2	3.7	2.8	4.1
Other (for listing by respondents)	1.2	1.3	1.2	1.2	1.1	1.3

reverse lines

*On a scale of 1 to 5, 1 is "vital need to know," and 5 is "no need to know." Deviations from the mean in a negative direction indicate a greater need to know. Except for "Other," subjects are ranked in order of greatest need to know by all respondents.

To accompany text on p. 9

Table 8

Ranked Subject Areas According to "Quality of Present Information": Mean Responses*

	All respondents (N=255)	Hospital-based RN's (N=151)	Non-hosp. based RN's (N=104)	Most recently trained (N=75)	Admin./ superv. (N=32)	Nurs. educ. (N=21)
Routine patient care	2.2	2.1	2.3	2.2	2.2	1.9
Drug information	2.3	2.2	2.5	2.2	2.0	2.8
Cardiovascular disease	2.4	2.4	2.5	2.3	2.7	2.3
Cancer	2.5	2.5	2.5	2.5	2.2	2.2
Psychological aspects of disease	2.7	2.8	2.7	2.7	2.7	2.5
New developments in area of specialization	2.8	2.7	2.9	2.9	2.8	2.8
New medical equipment	3.0	2.9	3.1	3.1	2.7	2.7
Health care agencies	3.0	3.0	2.9	3.1	2.6	2.8
Government regulations relating to health care	3.1	3.1	3.1	3.0	3.0	3.1
Forensic medicine	3.5	3.5	3.6	3.4	4.1	3.6
Office organization	3.5	3.6	3.3	3.7	3.3	3.1
Other (for listing by respondents)	3.9	3.9	3.9	3.8	3.6	3.8

*On a scale of 1 to 5, 1 is "most adequate," and 5 is "totally inadequate." Deviations from the mean in a positive direction indicate greater perceived inadequacy in the quality of information available. Except for "Other," subjects are ranked in order of best quality of information perceived by all respondents.

To accompany text on p. 9

Table 9

Ranked Subject Areas According to "Index of Perceived Need" (for Improvement in Quality of Information)*

	All respondents (N=255)	Hospital-based RN's (N=151)	Non-hosp. based RN's (N=104)	Most recently trained (N=75)	Admin./ superv. (N=32)	Nurs. educ. (N=21)
New developments in area of specialization	1.1	0.9	1.3	1.3	1.1	1.2
Government regulations relating to health care	0.9	0.6	1.2	0.9	1.2	1.1
New medical equipment	0.7	0.8	0.7	0.9	0.5	0.1
Psychological aspects of disease	0.6	0.6	0.6	0.5	0.6	0.5
Forensic medicine	0.5	0.4	0.6	0.6	0.9	0.2
Drug information	0.5	0.4	0.7	0.5	0.2	0.8
Health care agencies	0.5	0.2	0.9	0.6	0.7	0.5
Cardiovascular disease	0.1	0.2	0.1	0.2	0.	-0.2
Cancer	0.1	0.0	0.2	0.2	-0.3	-0.4
Office organization	-0.1	-0.3	0.1	0.0	0.5	-1.0
Routine patient care	-0.4	-0.4	-0.4	-0.3	-0.3	-0.6
Other (for listing by respondents)	2.7	2.6	2.7	2.6	2.5	2.5

*Index calculated by subtracting mean value of "need to know" from mean value of "quality of present information." As index approaches 0, perceived need for information diminishes. Maximum value of index is 4; negative values indicate abundance of information. Except for "Other," subjects are ranked according to greatest perceived need for information by all respondents.

interests.

The quality of present information available to respondents from all sources did not, in general, rate as high as the need to know. Significant divergence from the mean responses was noted in the areas of forensic medicine (poorer than average information) and health care agencies (better than average information) for the administrative/supervisory group. Nursing educators also rated their drug information as poorer than average.

When need to know is related to quality of present information in the construction of the "index of perceived need," the patterns of response become clearer. In interpreting this index, it is important to note that although a maximum value of 4 is theoretically possible, it would be most unlikely to occur, representing as it does a combination of total inadequacy of information (B=5) and a vital need to know (A=1): $B-A=4$. The indexes for the nurses' own list of interest areas ("Other") provide a more useful guide for comparison, 2.7 being the highest value encountered here. In two subject areas, the perceived need for improvement of information is marked; these are new developments in area of specialization, and government regulations relating to health care. These values were consistently high for all groups, but especially so in the case of the administrative/supervisory group and government regulations, and also for the most recently trained nurses and new developments in specialization. Consistently negative values were encountered for routine patient care. Very low or negative values were also typical of all groups in the areas of cardiovascular disease, cancer and office organization, the single exception to the last-mentioned area, again, in the administrative/supervisory group. For most nurses, it appears that in these areas, at least, there is a good fit between need to know and quality of information. One interesting trend here is that all values for hospital-based nurses are

equal to or below the mean (less perceived need for information), while all values for non-hospital nurses are equal to or above the mean (greater perceived need for information.) In addition, 30% of the non-hospital nurses wrote in other subject areas in which they had a vital or near-vital need to know, compared to 16.6% of the hospital nurses.

The first hypothesis is supported by the identification of at least two subject areas in which a distinct need for improvement of the quality of information in perceived.

Use of Information Sources

The second hypothesis and its subsections, regarding use of information sources, was tested by analysis of the mean responses to the frequency-of-use questions, with subsequent ranking of the nineteen sources as shown in Table 10. No particular pattern of verbal vs. written/printed sources was discernible. Although personal contact with colleagues ranked highest with the respondents as a whole, this was not true for every group (nursing educators in particular being partial to books.) Three printed sources (articles, books, papers) were also rated highly by all respondents. The main hypothesis was not supported for the nurses in this study.

Hypothesis 2a) states that nursing personnel in administrative/supervisory settings or in nursing education tend to use all sources of information more frequently than those working in other areas. (This was suggested by the results of Glass' study, although she made a distinction between clinical and educational administrators.) For the administrative/supervisory group in this study, reported frequency of use for five of the nineteen sources was less than the average, though not significantly so in the terms defined earlier. Although use of three sources was significantly greater than average (seminars, workshops and conferences; abstracts of papers; and catalogs) the hypothesis is considered unsupported for this group. Among

To accompany text on p. 11

Table 10

Frequency of Use of Information Sources: Mean Responses*

	All respondents (N=255)	Hospital-based RN's (N=151)	Non-hosp. based RN's (N=104)	Most recently trained (N=75)	Admin./ superv. (N=32)	Nurs. educ. (N=21)	Temp. Inact. (N=15)
Personal contact with colleagues	1.7	1.6	1.8	1.6	1.6	1.4	2.1
Articles in newsp. or mags.	2.0	2.0	1.9	1.9	1.9	1.6	1.9
Books	2.0	2.0	1.9	1.7	1.7	1.2	1.9
Papers in profes'l journals	2.3	2.3	2.3	2.2	2.3	1.6	2.2
Seminars, workshops, confs.	2.8	2.9	2.6	3.0	2.3	2.2	3.3
Catalogs	2.8	2.8	2.9	2.7	2.3	2.2	3.1
Radio and TV programs	2.9	2.9	2.9	3.1	3.2	2.7	2.5
Library reference services	3.2	3.2	3.1	2.9	3.3	2.1	3.0
Private information files (personal library)	3.2	3.4	2.9	3.0	3.0	1.8	2.9
Video, slide and tape programs	3.3	3.2	3.4	3.3	3.3	2.4	3.9
Bibliographies	3.5	3.6	3.3	3.3	3.6	1.9	3.4
Exhibitions	3.7	3.8	3.7	3.8	3.6	3.5	4.0
Contact with sales reps. (e.g. detailmen)	3.9	3.8	3.9	3.8	3.7	3.5	4.7
Directories and/or registries	3.9	4.1	3.5	3.8	3.6	3.7	4.2
Abstracts of papers	3.9	4.1	3.8	4.2	3.4	3.5	4.1
Indexing services	4.2	4.3	4.1	3.8	4.3	2.4	4.1
Current awareness services	4.2	4.3	4.1	4.1	4.2	3.7	4.4
Computerized info. services	4.5	4.6	4.4	4.3	4.7	4.2	4.6
Correspondence courses	4.7	4.7	4.7	4.6	4.5	4.7	4.9

*On a scale of 1 to 5, 1 is "use very frequently," and 5 is "never use." Deviations from the mean in a negative direction indicate more frequent use of the source. Sources are ranked by overall respondent use.

nursing educators, however, virtually every source listed showed more frequent than average use, and these figures were significant in twelve of the nineteen sources. With few exceptions, nursing educators also ranked ahead of every other group in their use of most sources. The most striking differences between them and other groups were in their greater reliance on bibliographies, papers in professional journals, indexing services and private information files (personal library). Again, it must be remembered that the groups as constituted in this study are not mutually exclusive and that a number of nursing educators are to be found among other groups, especially among the non-hospital nurses. This makes the differences exhibited by the educators, who really must be considered a special group, all the more apparent, and the hypothesis is well supported for them.

Hypothesis (b) is that the use of library-related information sources increases with recency of training. Those nurses who indicated most recent receipt of a diploma or degree (1970-) did show more frequent than average use of library reference services, with only the nursing educators using them more frequently. They also used indexing services to a significantly greater extent than the average, although only the educators used these services with any impressive degree of frequency. This group also used books and periodicals (journals, newspapers and magazines), and computerized information services and current awareness services somewhat more frequently than respondents as a whole, though abstracts of papers were used less often. When asked if they had ever had a MEDLARS search done, 6% of this group answered affirmatively, compared to 5.3% of all respondents and 15.8% of nursing educators. However, 56.2% of the recently trained nurses had approached a medical librarian for work-related information within the past year, compared to 37.4% for all respondents. The hypothesis is there-

fore supported for this group, though with certain qualifications.

Hypothesis (c) concerns difference in use of sources between hospital and non-hospital nurses. In two areas, a marked difference between the groups could in fact be identified. Non-hospital nurses use directories and/or registries to a significantly greater degree than either hospital nurses or the respondents as a whole. They also rely on their own private information files or personal libraries much more than do the hospital nurses. With only two sources, personal contact with colleagues and video, slide and tape programs, did use by hospital nurses exceed the mean. Conversely, use of sources by non-hospital nurses in every case but one (video, slide and tape programs) tended to be greater than average. The hypothesis is therefore supported for actual use of sources. Additional information about these two groups, however, can be determined from their responses to a question about potential source use. An impressive majority of all respondents (61%) checked seminars, workshops and conferences as a source of information they would use more frequently if it were more readily available. This source was ranked fifth among all listed sources actually used. Availability and cost appear to be key factors here; many nurses wrote such marginal comments as "Most are out-of-town and too expensive." Similarly, a comparably large percentage of both groups (46.7% of all respondents) would like to use video, slide and tape programs more frequently (this source rated tenth in actual use.) Nearly twice as large a percentage of hospital nurses as of non-hospital nurses, however, showed interest in greater availability of papers in professional journals, articles in newspapers and magazines, and books. Since both groups were equal or nearly so in their actual use of these sources, this must be considered both significant and difficult to account for, in view of the tendency of hospital nurses to show less perceived need for information. Personal cost

To accompany text on p. 13

Table 11

Source of Information Which Respondents Would Use More Frequently If They Were More Readily Available

	All respondents*		Hospital-based RN's*		Non-hospital RN's*	
	No.	%	No.	%	No.	%
Seminars, workshops, conferences	119	61.0	73	65.8	46	54.8
Video, slide and tape programs	91	46.7	53	47.7	38	45.2
Current awareness services	65	33.3	33	29.7	32	38.1
Exhibitions	62	31.8	41	36.9	21	25.0
Radio and TV programs	56	28.7	32	28.8	24	28.6
Computerized info. services	56	28.7	32	28.8	24	28.6
Library reference services	46	23.6	24	21.6	22	26.2
Correspondence courses	41	21.0	23	20.7	18	21.4
Papers in professional journals	36	18.5	27	24.3	9	10.7
Articles in newspapers and magazines	31	15.9	23	20.7	9	10.7
Books	28	14.4	20	18.0	8	9.5
Contact with sales representatives	25	12.8	19	17.1	8	9.5
Bibliographies	24	12.3	14	12.6	10	11.9
Catalogs	23	11.8	15	13.5	8	9.5
Personal contact with colleagues	22	11.3	11	9.9	11	13.1
Abstracts of papers	22	11.3	10	9.0	12	14.3
Private info. files (personal libr.)	19	9.7	13	11.7	6	7.1
Indexing services	17	8.7	13	11.7	4	4.8
Directories and/or registries	15	7.7	9	8.1	6	7.1

*Total numbers responding to this question were: All respondents, 195 or 76.5%; hospital nurses, 111 or 73.5%; non-hospital nurses, 84 or 80.8%.

may be a factor; this could relate to the finding that hospital nurses tend to rely less on their own personal libraries than do non-hospital nurses, who may consider their own collections to be more adequate to their needs.

One similarity between between these groups deserves special mention. Many nurses showed a desire for greater availability of both current awareness services and computerized information services in general. Current awareness services was checked by 29.7% of hospital nurses responding to this question, and by 38.1% of non-hospital nurses; computerized information services was checked by 28.8% of hospital nurses, and 28.6% of non-hospital nurses. This is especially interesting in the face of the very low use rankings of these services by both groups, and in view of the low use of MEDLARS search services, accompanied by a large number of comments like "I don't know what this is," "Never heard of it," or simply question marks.

One last small but important group should be considered here. Fifteen nurses indicated that they were temporarily inactive in nursing practice, and their reasons were various; among them, raising a family, back in school, or looking for a job. They took pains to fill out the questionnaire, however, and several demonstrated great interest in workshops for inactive nurses as an information source. These nurses relied to a significantly greater than average extent on radio and TV programs for their information needs, and to a significantly lower than average degree on seminars; personal contact with colleagues; video, slide and tape programs and contact with sales representatives. The reasons for most of these differences are obvious. The general pattern of source use frequency does not differ much from any other group, with books, periodicals and colleagues still ranking as the three most often used sources.

Only a few respondents added any sources to those listed on the

questionnaire. Five nurses mentioned in-service training; several others noted agency resource files and publications of the federal government as sources they used frequently; newsletters were also mentioned, especially by inactive nurses.

Urgency of Information Needs

The third hypothesis is that most of the information needs of health care practitioners must be met on the same day they arise, or sooner. In no case was this true of the nursing groups in this study. The time period considered most acceptable to all groups was "within one week," with 40% of all respondents checking this interval, and over 25% more, willing to wait even longer than a week. Some nurses correctly pointed out that the urgency of information needs will vary with the occasion; nevertheless, of all respondents, only 23.4% wanted most of their information on the same day, and only 11.1% wanted most of their needs met immediately. The only striking exceptions to the general pattern were the nursing educators, who indicated no immediate needs and few (9.5%) that had to be met on the same day; and the administrators/supervisors, who at the opposite end of the scale had the largest number of individuals with immediate needs (17.2%) and the fewest (10.3%) who would be willing to wait beyond one week. In this study, the hypothesis was not supported.

Use of Library Services and Continuing Education Programs

The last hypothesis optimistically proposes that users of libraries are generally satisfied with their service. The respondents were asked if they had approached a medical librarian for work-related information in the past year, and if so, to rate the information received. Of all respondents, 37.4% answered "yes" to the first question. Of these, 60.9% considered the information received to be adequate, 22.8% more than adequate and 16.3% less than adequate. As indicated earlier, the groups who

had most frequent recourse to a librarian during the year were the nursing educators and the most recently trained nurses. The rating-of-information figures for these were, respectively: 64.3% adequate, 21.4% more than adequate; and 57.1% adequate, 28.6% more than adequate. The administrators/supervisors came down on both sides, with 27.3% less than adequate, and 36.4% more than adequate. In this connection it should also be noted that library reference services ranked a fairly respectable eighth out of nineteen sources in frequency of use, ahead of personal libraries or files, and that over 20% of all respondents would use these services more were they more readily available. Another test of this hypothesis was in the use of library materials by those involved in programs of professional education. Twenty-nine percent of all respondents (37.9% of non-hospital nurses, 23.6% of hospital nurses) said they were so involved. Fifty-six percent of these were students, 30.7% were teachers, others were consultants or some combination of categories. Of these, 69% used the library at the institution where the program was held, and 31% used a library elsewhere. Various college or university libraries accounted for well over half of all libraries involved (62.1%), with only 15.3% using hospital or other health science libraries. (Among hospital nurses, this figure rose to 37.5%.) Only one nurse was taking a correspondence course. Most of those who commuted to the program travelled up to ten miles, though five nurses travelled over forty miles, one way. A variety of library materials were needed, usually involving some combination of journals, books and audiovisual material, with 23.3% using computer-assisted instruction. Respondents were asked to rate the ease with which they were able to obtain the needed materials. On a scale of 1 (very easy) to 5 (very difficult), the mean response was 2.7 The only significant deviations from the mean were among the educators (2.3, easier) and the administrators/supervisors (3.2, more difficult).

interpreting "general satisfaction" in a broad sense, therefore, the hypothesis may be considered supported by these findings.

DISCUSSION: IMPLICATIONS FOR LIBRARY SERVICE

Henderson [6], reviewing the implications for nursing in the various library activities of the Regional Medical Programs as reported in 1969, found that although nurses were the largest group of health workers and spent the most time in actual patient care, their needs had been relatively ignored in favor of physicians' needs. While conceding that nurses and other health professionals have taken little initiative in the development of library services, she nevertheless concluded that "neither physicians nor librarians are thinking 'health science libraries' and 'allied health workers' but rather 'medical libraries' for physicians.'" The results of this market survey appear to confirm that deficiencies still exist on both sides. Nurses have information needs which could be filled by libraries if the nurses would use their services, making suggestions for improvement when they do. Libraries need to take a more vigorous public relations stance in advertising their products and services, particularly in the case of non-hospital nurses with no health science library of primary affiliation. All groups surveyed in the study indicated rather strong perceived needs for improvement of information in certain subject areas presented on the questionnaire; non-hospital nurses often registered above-average needs. One-third of the non-hospital nurses and one-fifth of all nurses surveyed wrote in additional subject areas of professional interest in which they felt a great need for more information. This need, combined with the receptive attitude of the nurses toward current awareness services and computerized information services in general would seem to favor the marketability of SDI and other search facilities. That such

service is available, little known to nurses and less used, is a primary communications failure.

One way in which librarians could publicize their services would be to write more articles for nursing journals and magazines. Unlike the nurses in the British study cited earlier, the nurses in this study not only made frequent use of periodicals for their professional information, the majority also held personal subscriptions to one or more journals. An example of one such article by a nurse-librarian, on how to search the literature, appeared in the American Journal of Nursing in 1974 [7]. An excellent British series in the Nursing Times [8], [9], [10] could also be used as a model.

Another useful approach would be to establish a dialogue between librarians and the officers of local nursing associations. Such people can be expected to be sensitive to the information needs of their membership; indeed, their offices often function as switching centers for referrals to other agencies and provision of nursing information. This is especially applicable in the case of non-hospital nurses, whose information needs may not be met by hospital or other libraries even when they have dependable access to them, and who rely on colleagues nearly as much as hospital nurses do for information. In this connection, an interesting statewide I and R (Information and Referral) network in Wisconsin has been described [11]. Basic services are aimed primarily at the elderly, but the system is a model for any information service. Coordinated resource files on users and facilities (agencies and programs) can be particularly helpful to health care professionals who need supplementary services for their patients. This could be done in a small way through local groups and libraries, and may result in elimination of much duplication of effort. In areas like Albany, such concrete projects as compilation of a single-volume, up-to-date

directory of human services and programs could be carried out with the aid of library students. This would have the dual advantage of performing a real service for health care practitioners, and giving library students an insight into the nature of some of the most pressing information needs in health care.

In the area of continuing education, the use of the library and its resources should be a prime consideration. The nursing educators in this study indicated both awareness of and frequent use of most library and library-related services, and they should be kept apprised of new developments in information retrieval. In their review of resources for continuing education, Cooper and Hornback [12] suggest a number of ways in which nurse-educators can assist their students both to support and be supported by library services, in particular by recognition of the librarian as a "professional colleague" who can save the nurse many valuable hours of time. Again, one of the most urgent issues is library support to the non-hospital nurse, often isolated in a rural area, who wishes to keep her practice current. Popiel [13] suggests innovative approaches such as self-study audiovisual aids, telelectures, tapes, radio, TV and satellite programming. Nursing Dial-Access tape libraries have been described as part of the Wisconsin Regional Medical Program [14]; these are intended for around-the-clock use by practitioners in an isolated setting--"the public health nurse, the nurse in a rural hospital or nursing home, the school nurse, the occupational health nurse." That such services (offered locally and without charge or at a reasonable price) would be well received by the nurses in this study is apparent.

Both the nursing resources and the access policies of health science libraries in H.S.A. V should be investigated. Some needs could be met by provision of a library card. During the present study, at least one nurse

engaged in childbirth training suggested that health science collections failed to meet her needs because of the emphasis on the pathological, rather than on the normal course of events. The expressed need of the administrators/supervisors for up-to-date literature on personnel and management practices probably will not often be met by health science collections either.

Finally, further research into the specific needs of health care practitioners is necessary. Many of the nurses in this study (40.4% of non-hospital nurses, 25.8% of hospital nurses) indicated their willingness to be interviewed. One area for exploration would be the reasons why any work-related information requested from a librarian was considered less than adequate.

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FOOTNOTES

*(page 4 of text): The questionnaire was developed by the author and Cavan McCarthy, in consultation with Ursula Poland of the Schaffer Library of Health Sciences. It is more fully described in an unpublished preliminary report on practicing physicians by Strasser and McCarthy, on file at the SUNY Library School.

*(page 7 of text): Frequencies here and throughout the paper were calculated from the number of actual responses to each question and do not include missing data.

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